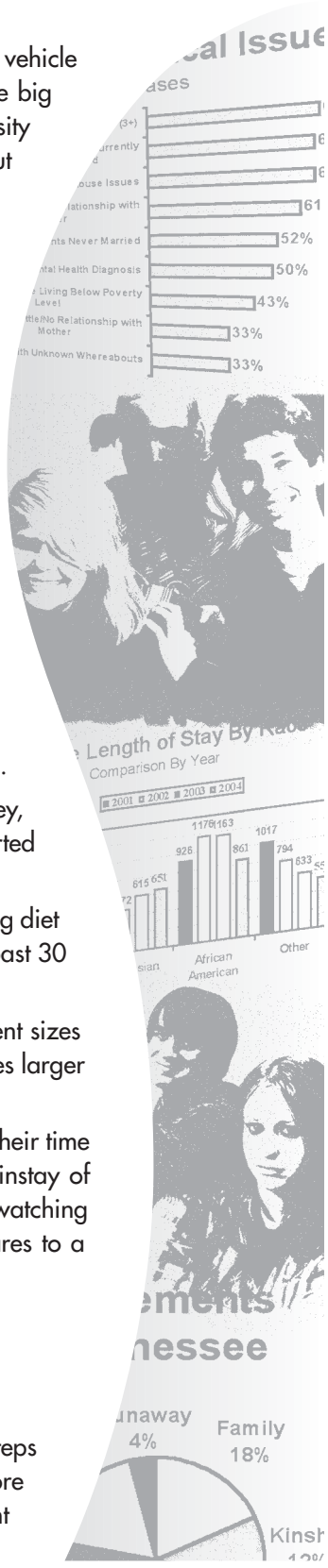
Summary Chapter VIII

Healthy Diets and Physically Fit Youth

Given the decrease in teen smoking, drug use, unintended pregnancy and motor vehicle mortality, adolescents entering the new millennium might be the healthiest ever, with one big exception: their eating habits and physical activity. The increase in overweight and obesity among U.S. children and adolescents has been called America's newest epidemic. About 13% of U.S. children and adolescents are overweight or obese.

Reversing the rapid increase in obesity among children and adolescents in the United States will require a multi-pronged approach by schools, families, communities, industry, and government that would be as comprehensive and ambitious as national antismoking efforts.



Tennessee Data

- According to 2003 Tennessee Youth Risk Behavioral Survey (TN YRBS) results, 15% of Tennessee's high school students are overweight; the national average is 13.5%.
- There are twice as many overweight males (20.7%) than females (9.5%) in Tennessee. Nationally, fewer males (17.4%) are overweight compared to Tennessee males (20.7%). Tennessee females are overweight at similar national rates.
- More white high school males (21.2%) are overweight than compared to African-American males (18.3%). African-American high school females (21.5%) are more than three times as likely to be overweight as their white female counterparts (6.3%).
- About 60% of high school students reported that, in the month preceding the survey, they performed physical activity to lose or maintain weight, and about 41% reported eating less food or fewer calories to lose weight.
- Approximately 14% of high school students reported fasting, and 10% reported using diet pills, powders, or liquids to lose weight or to keep from gaining weight during the past 30 days.
- One reason for the increasing girth of today's youth may be portion size. The current sizes of teen fast food favorites – french fries, hamburgers and soda – are two to five times larger than before fast food restaurants became widespread.
- Rather than being physically active in their spare time, studies on how teens spend their time indicate that watching television and playing video or computer games is the mainstay of activity. According to the 2003 TN YRBS, 44.3% of high school students reported watching TV for at least three hours or more a day on an average school day. This compares to a national rate of 38.2%.

Best Practices

Nutrition

- **Parents** – Family knowledge and habits regarding a healthy diet are the earliest steps to preventing adolescent overweight and obesity. Teens and parents need more consumer awareness about reasonable food and beverage portion sizes. Pregnant

and parenting teens need education about the potentially protective effect of breastfeeding against the development of later obesity in their infants.

- **Schools** – Schools can promote healthful dietary patterns by ensuring that school lunches are healthy and attractive to teens and by providing healthier snack options.
- **Communities** – Communities can seek demonstration grants to address the lack of access to and availability of healthy affordable foods in inner cities.

Physical Activity

- **Parents** – Parents and older siblings can model participation in physical activity and/or support their teen's pursuit of athletic activity.
- **Schools** – Where it has been cut, schools can restore physical education to the daily schedule. Where physical education classes are still available, schools can devote more class time to actual participation and increase the levels of intensity.
- **Communities** – Communities can support youth sports and recreation programs that offer a range of activities that are accessible and attractive to teens. Communities can be creative in zoning and transportation planning to make it convenient, safe and attractive for young people to walk and ride bicycles.

Tune In

- **Parents** – Parents can create an atmosphere at home that promotes self-respect for all members. Children and youth can be encouraged to eat in response to appropriate body signals. Parents can serve as a role model to children and youth by eating healthy and being physically active.
- **Schools** – Schools can ensure an atmosphere conducive to all students feeling respected and encouraged to make healthy choices, regardless of physical size or weight. Teachers and other school staff can encourage students to tune in to their own body signals so they eat in response to appropriate cues. Schools can provide opportunities for teachers/staff to model healthy eating and increased physical activity. A pleasant school environment and an adequate amount of time for students to enjoy school breakfast and school lunch can be provided. Schools can ensure an environment that fosters healthy attitudes regarding physical activity.
- **Communities** – Communities can build an atmosphere that is conducive to citizens feeling respected, regardless of size or weight. Citizens can be encouraged to tune in to their own body signals so they eat only when hungry. Increased opportunities for modeling healthy eating and increased physical activity can be provided. Community support for overweight prevention and treatment programs can be encouraged.

2✪1✪ Objectives

Increase Physical Activity

- By 2010, increase the proportion of high school students who engage in vigorous physical activity three or more days per week for 20 minutes or more per occasion to 85%, from the 2003 rate of 61.1%.

Reduce Obesity

- By 2010, reduce the proportion of high school students who are overweight or obese to 5.0%, from the 2003 baseline of 15.2%

Websites

Action for Healthy Kids
www.actionforhealthykids.org

American Dietetic Association
www.eatright.org

American Medical Association
www.ama-assn.org

American Psychiatric Association
www.psych.org

Center for Nutrition Policy and Promotion
US Department of Agriculture
www.usda.gov/cnpp

Food and Nutrition Information Center
www.nal.usda.gov/fnic

Food and Nutrition Services
US Department of Agriculture
www.fns.usda.gov

Institute for Health Care Research and Policy
www.georgetown.edu/research/ihcp

Kansas State University Cooperative Extension Service
www.oznet.ksu.edu

National Center for Chronic Disease Prevention and Health Promotion
www.cdc.gov/nccdphp

National Center for Health Statistics
www.cdc.gov/nchs

National Dairy Council
www.nationaldairycouncil.org

National Eating Disorders Association
www.nationaleatingdisorders.org

National Governors Association
www.nga.org

National Institute of Child Health and Human Development
www.nichd.nih.gov

National Institute of Diabetes and Digestive and Kidney Diseases
www.niddk.nih.gov

Tennessee Academy of Family Physicians
www.tnafp.org

Tennessee Association for Health, Physical Education, Recreation and Dance
www.tahperd.us

Tennessee Chapter of American Academy of Pediatrics
www.tnaap.org

Tennessee Department of Education
School Nutrition Programs, Office of School Health
www.state.tn.us/education

Tennessee Department of Health,
Nutrition Services/WIC, Maternal Child Health, Community Services, Minority Health
www.2.state.tn.us/health

Tennessee Dietetic Association
www.eatright-tn.org

Tennessee Governor's Council on Physical Fitness and Health
www.physicalfitness.org/tennessee.html

Tennessee Extension Service
www.utextension.utk.edu/fcs

Tennessee Healthy Weight Network
http://tnhealthyweight.org/

Tennessee On The Move
www.americaonthemove.org/tn

Tennessee School Health Coalition
www.healthy-kids.org

US Department of Agriculture
http://www.usda.gov/wps/portal/usdahome

US Surgeon General
www.surgeongeneral.gov

Youth Risk Behavior Surveillance System (YRBS)
www.cdc.gov/nccdphp/dash/yrbs

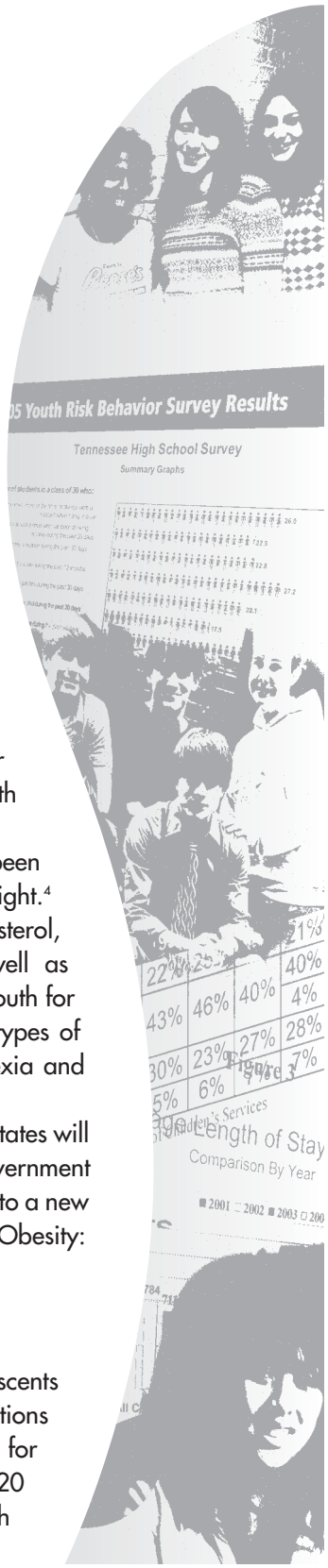
Chapter VIII

Healthy Diets and Physically Fit Youth

Chapter Preview

This chapter includes a description of:

- Impact of obesity on adolescents' health
- Prevention pays
- Healthy weight, physical activity and nutrition issues
- National and state data
- Health disparities data
- Eating disorders
- Best practices
- State obesity prevention programs
- Healthy People 2010 goals



Prevention Pays

Obesity contributes more to higher costs for health care services and medications than either smoking or alcohol abuse.[1] The cost in 2001 dollars of providing hospital-based health care for obesity-related childhood diseases rose from $35 million to $127 million annually from 1979 to 1999.[2]

Given the decrease in teen smoking, drug use, unintended pregnancy and motor vehicle mortality, adolescents entering the new millennium might be the healthiest ever, with one big exception: their eating habits and lack of physical activity.

The increase in overweight and obesity among U.S. children and adolescents has been called America's newest epidemic.[3] About 13% of children and adolescents are overweight.[4] Overweight and obese teens face immediate health problems, such as high cholesterol, hypertension, Type 2 diabetes, insulin resistance, polycystic ovary syndrome, as well as emotional issues. Excess weight in adolescence carried into adulthood also predisposes youth for serious adult health risks such as coronary disease, stroke, gallbladder disease, some types of cancer and osteoarthritis of the weight–bearing joints.[5] The flip side of obesity is anorexia and eating disorders, which have their onset in adolescence.

Reversing the rapid increase in obesity among children and adolescents in the United States will require a multi-pronged approach by schools, families, communities, industry, and government that would be as comprehensive and ambitious as national antismoking efforts, according to a new report from the Institute of Medicine of the National Academies, "Preventing Childhood Obesity: Health in the Balance".[6]

Obesity

"At risk of overweight" and "overweight" are the terms used for children and adolescents whose excess body weight could pose medical risks. Due to potential negative connotations associated with the term "obesity", "overweight" is preferred. Using the 2000 Centers for Disease Control and Prevention (CDC) growth charts, at risk of overweight for ages 2-20 years is defined as a Body Mass Index (BMI)–for-age between the 85th and the 95th percentiles. Overweight in children is defined as a BMI-for-age at or above the 95th

percentile on the charts. BMI is weight in kilograms divided by height in meters squared (kg/m2).[7]

Find It Yourself

You can find a BMI calculator at www.nhlbisupport.com/bmi. Online training modules in the use of BMI and growth charts are available at www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules.

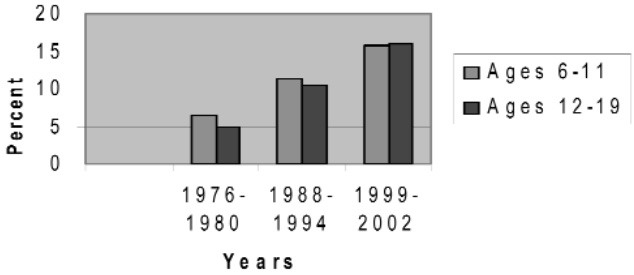
Healthy Weight

National Data

National surveys show that the percentage of overweight children and adolescents has more than doubled in the last 30 years. Currently, one in five children are overweight. Thirteen percent of children and adolescents in the United States are seriously overweight.[8] Among 6-11 year olds, the percentage of overweight children has risen from 6.5% in 1976-1980 to 15.8% in 1999-2002. Likewise, the percent of overweight youth ages 12-19 has increased from 5% to 16.1% in this same time period[9] (see Figure 1). This increase has affected all adolescents, regardless of gender, race/ethnicity or age group.[10] African-American high school students (17.6%) were more likely to be overweight than their white (12.2%) counterparts.[11]

Figure 1

Percent of Overweight Children Ages 6-19, by Age, Selected Years 1976-2002



Sources: Data for 1976-1994 National Center for Health Statistics (2003), Health United States, 2003 with Chartbook on Trends in the Health of Americans, National center for Health Statistics, 2003 Table 69. Data for 1999-2002 from Hedley, Allison, Ogden, Cynthia, Johnson, Clifford, Carroll, Margaret, Curtin, Lester and Katherine Flegal, "Prevalence of Overweight and Obesity Among US Children, Adolescents, and Adults, 1999-2002", JAMA, 291 (23) 2847-2050.

Overweight is a particular concern for adolescents because it affects both physical and emotional well-being during adolescence and into adulthood.

- Many obese children and adolescents are at risk for Type 2 diabetes, a condition most often related to obesity, and once seen only in adults. Type 2 diabetes accounts for up to 95 percent of all diabetes cases and is the main cause of kidney failure, limb amputations and new-onset blindness in adults and a major cause of heart disease and stroke.[12]
- Eighty-five percent of obese adolescents will become obese adults, and obese teens are more likely than obese younger children to be obese as adults.[13]
- Odds for obese youth to attain ideal body weight as adults are grim: if a child is obese at age 12, the odds are 4:1 against attaining ideal body weight; if an adolescent is obese at age 19; the odds are 28:1 against attaining ideal body weight.[14]

Tennessee Data

Healthy People 2010 Objective 19-03 (b):

Reduce the proportion of children and adolescents who are obese.

	1993	1999	2003	2010 Goal
TN	NA	11.9%	15.2%	5%
U.S.	NA	10.8%	13.5%	5%

Source: Tennessee Youth Risk Behavior Survey, 1999 and 2003, U.S. YRBS Survey, 1999 and 2003

Healthy People 2✪1✪ Progress

Tennessee youth as well as youth throughout the country are increasingly more obese. Significant efforts by all sectors of society will be needed to reverse the trend and begin progress towards reaching Healthy People 2010 goals.

Health Disparities

- The discrepancy of overweight among males and females in Tennessee is similar to national percentages; high school males (20.7%) are twice

as likely to be obese as high school females (9.5%).

- African-American females (21.5%) are the most overweight group, closely followed by white males (21.2%).
- From 1999 to 2003 white males (21.2%) surpassed African-American males (18.3%) in becoming more overweight.
- African-American females (21.5%) are more than three times as likely to be obese compared to white females (6.3%).

Table 1

Youth Reports and Perceptions of Weight, 2003

	TN	U.S.
At-risk of Overweight	15%	15.4%
Overweight	15%	13.5%
Self-perception of Overweight	31%	29.6%

Source: 2003 United States Youth Risk Behavior Surveillance Survey, 2003 Tennessee Youth Risk Behavior Survey

In Tennessee, the only source for state-wide data on adolescent weight and youth perceptions of their weight, eating and exercise habits is the Tennessee Youth Behavior Risk Survey (TN YRBS).

A 27.7% increase in obesity has occurred from 1999 to 2003 among Tennessee high school students.[15] Health professionals, policy makers, youth workers, parents, youth, civic and business leaders all have an enormous challenge to work together to address these issues if Tennessee is to meet the 5% obesity goal for Healthy People 2010.

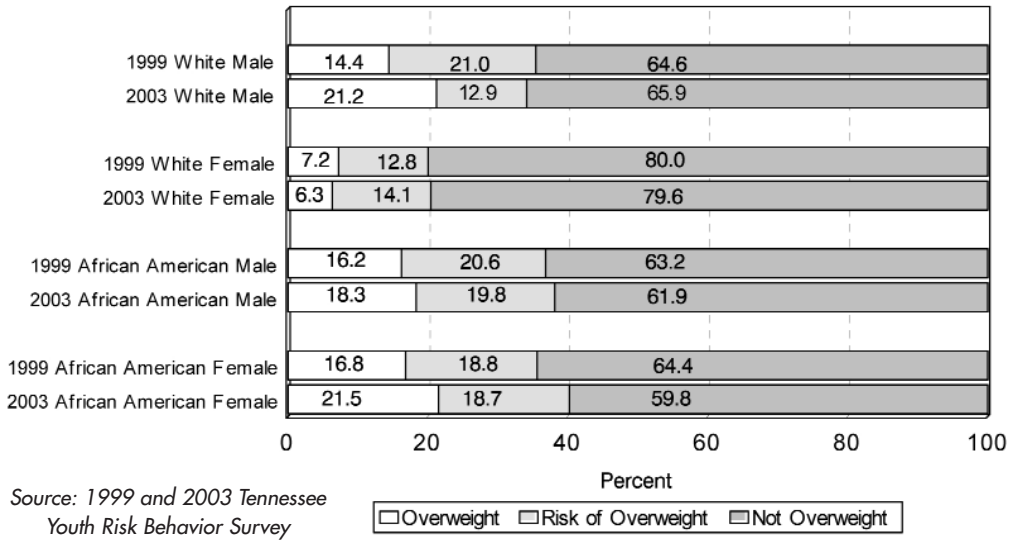
According to 2003 Tennessee Youth Risk Behavior Survey results, 15% of Tennessee's high school students are overweight, which is higher than the national average of 13.5%.

Tennessee WIC Program Data

Women Infants and Children (WIC) program data from the Tennessee Department of Health indicate that over 9.7% of the approximately 200,000 infants and children (ages 0-5) examined last calendar year (2004) were overweight (their weight exceeded the 95th percentile for height/weight). The trend towards obesity is now beginning in early childhood.[16]

Figure 2

Obesity Status of Tennessee's High School Students by Race and Gender, 1999 and 2003



Source: 1999 and 2003 Tennessee Youth Risk Behavior Survey

Tennessee CSHP Program Data

Coordinated School Health Programs (CSHP) collect extensive data on several health indicators including overweight measures. CSHP data represent 20,000 students residing in 10 semi-rural counties. These data do not represent urban schools nor is it representative of the entire state adolescent population. However, the CSHP results are most alarming:

- Screenings of Body Mass Index (BMI) were conducted in grades K, 2, 4, 6, and 8. The trends for "at risk" and 'overweight" were detected as early as Kindergarten. Within the CSHP sites 16% of the Kindergarten males were "at risk" for being overweight and 18% were "overweight". In the sixth grade these same percentages are exceeding 18% and 29%.
- The analysis of 2004 BMI from the Eighth Grade revealed that 20% of all CSHP students were at the 85th percentile. An additional 27% were already at the 95th percentile. These data indicate that eighth grade students at the CSHP sites have a combined elevated risk of 47%.
- The CSHP average for High School students "at risk" for becoming overweight was 21%. The CSHP average for "overweight" high school students was 24%. These data indicate that high school students at the CSHP sites have a combined elevated risk of 45%.[17]

Physical Activity

Healthy People 2010 Objective 22-07:

Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardio-respiratory fitness 3 or more days per week for 20 or more minutes per occasion.

	1993	1999	2003	2010 Goal
TN	59.7%	63.4%	61.1%	85%
U.S.	65.8%	64.7%	62.6%	85%

Source: TN YRBS Survey, 1993, 1999 and 2003; U.S. YRBS Survey, 1993, 1999, 2003

Healthy People 2✪1✪ Progress

Nationally, students report a decrease in participating in vigorous physical activity from 1993 to 2001. In Tennessee, students report a slight increase during the same time period. As of 2003, both groups report a similar level of vigorous physical activity. Significant efforts from all sectors of society will be needed to reach the Healthy People 2010 goal.

Health Disparities

- Female high school students (40%) are more likely to engage in vigorous physical activity than male high school students (28%).

With regards to levels and frequency of physical activity, Tennessee high school students closely mirror national averages.

- About 61% of Tennessee's high school students report that they engage in vigorous physical activity three or more days per week for 20 or more minutes per occasion.[18] Tennessee students are close to the national rate of 62.6%.[19]
- 33.7 percent of Tennessee high school students responded that they were physically inactive (did not participate in at least 20 minutes of vigorous physical activity on three or more of the past seven days and did not do at least 20 minutes of moderate physical activity on five or more of the past seven days).
- In 2003, 28.7% of Tennessee's high school students attended physical education classes daily. The national rate reported in 2003 was 28.4%.

Nutrition

According to the 2003 Youth Risk Behavior Survey, 18.1% of all Tennessee high school students had eaten fruits and vegetables more than 5 times a day compared to 22% nationally.

- More male high school students (18.5%) than female students (17.6%) ate their fruits and vegetables.
- 12.3% of all Tennessee high school students reported they drank 3 or more glasses of milk a day compared to 17.1% nationally.
- Males (17.3%) drank milk more than twice as often as females (7.2%).

Causes and Consequences of Obesity and Poor Nutrition

Although the "bottom line" for weight gain is consuming more calories than one expends, obesity is a chronic disease with multiple factors contributing to its prevalence. Some factors are intrinsic and not likely to be altered by health policy or community programs, including genetics, familial predisposition, metabolic disturbances, neurobiologic variations in appetite control and endocrine disorders. Other factors, however, are linked to environmental and social conditions and poor nutritional habits. These factors are the main causes of the escalating rates of obesity in America:

- Consumption of a high fat, high calorie diet
- Ever-increasing portion sizes
- Overindulgence or reliance on "fast foods"
- Skipping breakfast and lunch and eating the majority of calories at night
- Eating when anxious or depressed for mood control ("food as friend")
- Eating in association with sedentary activities, such as watching television
- Decreased physical activity ("couch potatoes")[20]

What Adolescents Eat

The typical adolescent requires more calories than an adult of the same size and comparable activity level.[21] Nutrition surveys have found that because of poor dietary patterns, growing adolescents in the United States are susceptible to deficiencies in calcium, iron, and vitamins A and C.[22]

Calcium is essential for the formation and maintenance of bones and teeth. Nutrition experts estimate that about half of adolescent males and more than 80% of adolescent females do not meet dietary recommendations for calcium intake. This places them at serious risk for osteoporosis (loss of bone mass) and other bone diseases as adults, because nearly 90% of adult bone mass is established by the end of adolescence.[23] According to the 2003 Tennessee Youth Risk Behavior Survey only 12.3% of high school students reported they drank 3 or more glasses of milk per day during the past seven days. Nationally, the average among high school students in 2003 was 17.1%.

When They Eat

While adolescents often skip meals; they are most likely to skip breakfast. Skipping breakfast increases the likelihood that teens will not meet nutritional requirements and can lead to poorer performance at school.[24] Skipping breakfast is also associated with being overweight.

A recent survey of over 16,000 youth ages 9 to 14 found that adolescents who ate regularly scheduled family dinners were more likely than their peers to consume fruits, vegetables and higher levels of calcium, iron, folate and vitamins, and less likely to drink soda or eat fried foods, high-fat or sugar-laden foods. Eating together with one's family has been associated with improved school and psychological performance.[25]

Where They Eat

Nationally, 73.9% of middle/junior high schools, and 98.2% of senior high schools have either vending machines or a school store, canteen or snack bar where students can purchase food and beverages – most commonly soft drinks, sports drinks or fruit juices that are not 100% juice; salty snacks; and baked goods that are high in fat.[26]

New school vending machine legislation was passed by the Tennessee General Assembly in 2004 that limits the type of food sold through vending machines or other sources in K-8 schools. Allowable foods and drinks include: whole grain, enriched or fortified grains or grain products; fruits or one hundred percent (100%) fruit juices; water; milk or dairy products; soy-based products; vegetables or vegetable juices; electrolyte-replacement beverages; or nuts, nut spreads, seeds, legumes and trail mixes. No foods of minimum nutritional value will be sold until at least one-half (1/2) hour after the end of the school day. During set meal times, school nutrition programs may sell food items that are part of a meal component as defined by the United States Department of Agriculture. A school may permit the sale of food items that do not comply with the above list as part of a school fundraising event in any of the following circumstances: if students of the school sell such food items off of school premises; or if students of the school sell such food items at least one-half (1/2) hour after the end of the school day.[27]

Portion Size

One reason for the increasing girth size of today's youth may be portion size. Larger portions mean more calories (and in the case of "super-sized" fast foods,

more fat). They also encourage teens to eat more than they usually would. According to a recent study, restaurant portion sizes have increased greatly over the last 20 years and now exceed federal standards, paralleling the weight gain seen in today's youth. The current sizes of perennial teen fast food favorites – french fries, hamburgers and soda – are two to five times larger than when fast food restaurants became common sights on major streets.[28]

Eating Disorders

Eating disorders include anorexia (*anorexia nervosa:* self-starvation and refusal to maintain minimal body weight), bulimia (*bulimia nervosa:* binge eating followed by purging), and binge eating disorder (compulsively overeating without purging).

The exact incidence of eating disorders, in adolescents, both nationally and in Tennessee, is difficult to determine because most data are from self-reported surveys with very different methods of sampling and assessment. Although anorexia in particular was previously seen mostly in white, middle and upper-class adolescent and young adult females, the prevalence in the past two decades includes a diversity of ethnic and socioeconomic groups in both genders. Current combined estimates indicate that 5-10% of U.S. adolescent females and 2% of adolescent males have some form of an eating disorder.[29]

Tennessee high school students seem to be conscious about the links between overweight, nutrition and physical activity. According to results from the TN YRBS 2003 survey:

- 59.5% of the students reported that, in the month preceding the survey, they performed physical activity to lose or maintain weight, and about 41% reported eating less food or fewer calories to lose weight.
- 13.6% of the students reported fasting and 10% reported using diet pills, powders, or liquids to lose weight or to keep from gaining weight during the past 30 days.

Anorexia

Adolescents may take dieting behaviors to the extremes. Anorexics have a distorted self-image, thinking they are too fat, regardless of their actual weight. They will starve themselves in order to lose weight, sometimes to the point of death. They may also combine starvation with intense physical activity and purging, either through the use of laxatives or self-induced vomiting. While occurring primarily in girls, boys can also be anorexic, often manifested in the desire to lose weight for sports requiring attention to weight, such as wrestling, figure skating, equestrian sports, some track and field sports and gymnastics.[30]

Bulimia

Bulimics combine binge-eating (literally, stuffing oneself) followed by purging. A telltale sign of self-induced vomiting is the wearing away of enamel on the back of the front teeth caused by contact with gastric acids.[31]

Binge Eating Disorder

Binge eating disorder is a new term used to describe individuals who binge eat but do not use inappropriate compensatory measures (purging, fasting, excessive exercise). These teens compulsively overeat, eat large quantities of food very quickly to the point of feeling uncomfortable, sense a lack of control over eating, and often feel embarrassed, disgusted or depressed. This type of eating disorder can lead to significant weight problems and obesity.

Weight, Health and Emotional Well-Being

Since a primary task of adolescence is forging one's own identity, perceptions of overweight can be an emotional nightmare for a body-conscious teen.

- Being picked on or bullied because of one's weight can cause emotional torment to some youth and may, in fact, discourage them from pursuing sports and other lifestyle changes necessary to reach and maintain a healthy weight.[32]

- The perception of being fat and being dissatisfied with their physical appearance may lead adolescent girls and boys to unhealthy weight control behaviors, such as unsupervised dieting, diet aids (e.g. anabolic steroids, untested dietary supplements), fasting, self-induced vomiting and use of tobacco as an appetite suppressant.[33]
- Boys may be stigmatized because of small stature or thinness.[34]

The Other Side of the Coin: Hunger and School Achievement

The other sign of the coin is that teens that do not get enough to eat do worse in school and have greater difficulty getting along with their well-fed peers, according to researchers. One study found that teenagers who did not get sufficient food were more likely to have seen a psychologist, to have been suspended from school and to have had difficulty getting along with their peers. Teens with inadequate food were almost three times more likely to have been suspended from school.[35]

Best Practices for Prevention

Best practices are those strategies, activities or approaches that have been shown through research and evaluation to be effective at preventing and/or delaying a risky/undesired health behavior or conversely, supporting and encouraging a healthy/desired behavior.

Nutrition

Everyone has a part in helping youth establish healthy eating habits and getting them up and on the move. This means that changes must become lifelong habits.

Eat Breakfast

In most cases, the best way to assure a healthy weight is the basic equation of proper nutrition and physical activity. However, when left to their own devices, adolescent eating patterns are characterized by: snacking, fast foods, sodas instead of milk, missed meals and eating on the run. This may result in diets that are higher in calories, saturated fats, cholesterol and salt, and lower in fiber, vitamins and minerals than is recommended for good health.[36] These patterns are of concern to health experts because eating patterns formed in adolescence persist into adulthood.[37] Good nutrition is key.

Parents

Family knowledge and habits regarding a healthy diet are the earliest step to preventing adolescent overweight and obesity and ensuring healthy eating habits. Teens as consumers need to be aware of the health effects of being overweight, not just the cosmetic effects. Both teens and their parents need more consumer awareness about reasonable food and beverage portion sizes. In addition to traditional prenatal nutrition education, pregnant and parenting teens (and their mothers) need education about the potentially protective effect of breastfeeding against the development of later obesity in their infants.[38]

Schools

Schools can promote healthful dietary patterns by ensuring that school lunches are healthy and attractive to teens and providing healthier snack options.[39] Vending machines in schools may seem a financial windfall to schools, but schools can explore stocking them with healthy alternatives to soda and candy.[40]

Communities

Communities can seek demonstration grants to address the lack of access to the availability of healthy affordable foods in inner cities.[41]

Physical Activity

Move Your Body

We all know the prescription: regular physical activity helps build and maintain healthy bones and lean muscles, controls weight, improves cardiovascular health, reduces feelings of depression and anxiety, and promotes psychological well-being. But what are the adolescents doing about it?

Turn Off the TV

Studies on how teens spend their time indicate that watching television and playing video or computer games is the mainstay of activity. According to the 2003 TN YRBS, 44.3% of high school students reported watching TV for at least three hours or more a day on an average school day. This compares to a national rate of 38.2%.[42]

Increase Physical Activity

To get teens (and adults) off the couch, the Surgeon General's Task Force on Community Preventive Services'

recommendations for increasing physical activity encourage:[43]

- Behavioral and social approaches, such as school-based physical education, social support interventions in community settings[44] and individually adapted health behavior change programs;
- Informational approaches, such as community-wide campaigns and prompts to encourage the use of stairs; and
- Environmental and policy approaches, such as creation of, or enhanced access to, places for physical activity, combined with informational outreach activities.

But what about the students who do not exercise on their own? Participation in a daily physical education class has dropped from 42% in 1991 to 25% in 1995, with high school physical education classes taking the biggest hit. A recent federal study on school health policies and programs determined that just 47% of middle/junior high schools and 26% of high schools require at least three years of physical education.[45]

Parents

Parents[46] and older siblings can model participation in physical activity and/or support their teen's pursuit of athletic activity. Also, parents can work with their parent-teacher association to make physical activity a school priority.

Schools

School districts can improve participation in physical activity in a number of ways. Where physical education has been cut from the daily schedule, it can be restored. Where physical education classes are still available, schools can explore ways to devote more class time to actual participation, and increase levels of intensity, such as adding more levels of difficulty. They can make sure that after-school programming includes physical activity opportunities.

Tennessee's state physical education requirements include:

- Physical education must be offered in grades K-8 as part of the regular curriculum for students at each grade level. There are no requirements for the number of minutes per day, days per week, days per month, or days per year; however, the curriculum standards required by the State must be met in each grade and each school.
- Physical education at the secondary level is offered as part of the Lifetime Wellness course required by the State for graduation. No additional physical education courses are required by the State during high school.
- Many high schools with block scheduling provide physical education courses as part of the electives available to students. Some local school systems have also chosen to make one or more units of physical education required for graduation in addition to the State required Lifetime Wellness course (Metro-Nashville is an example). Some local school systems have also required an additional year of Lifetime Wellness (developed locally) for graduation.
- Tennessee has mandated curriculum standards for all subject areas; however, the State does not provide local school systems with curriculum guides. The K-8 and 9-12 physical education curriculum standards, including the Lifetime Wellness course, were revised in 2000 based on the NASPE standards and are available on the Department of Education website at www.state.tn.us/education/ci/cicurframwkmain1.htm#pelife.

- The Lifetime Wellness course consists of seven standards. Six of these standards are concerned with traditional health education subjects (disease prevention and control, mental health, nutrition, safety and first aid, sexuality and family life, and substance use and abuse) while the other standard concerns personal fitness and related skills. The goal of the personal fitness standard is knowledge and skills to achieve and maintain a health-enhancing level of personal fitness. The Lifetime Wellness course is a one-unit course and is offered for two semesters in a traditional high school schedule and for one semester in schools with block scheduling.
- Tennessee does not have a required physical fitness test for any grade level.
- There are no Gateway examination requirements for physical education or health education.
- High school students cannot take JROTC, band, etc., and count it as an elective in physical education. In addition, band cannot be substituted for the Lifetime Wellness course. Students taking two units of JROTC may count that experience for the required unit of Lifetime Wellness if the local board of education has complied with the requirements of the State Board of Education for this substitution.
- Students in grades K-8 cannot substitute anything for the physical education that must be offered to all students in those grades. With the new class size requirements effective beginning fall 2001, many schools are not able to offer physical education daily to all students. The number of minutes and the days when physical education is provided are determined at the school building level.[47]

Communities

Communities can support youth sports and recreation programs that offer a range of developmentally appropriate activities that are accessible and attractive to teens. Communities can be creative in zoning and transportation planning to make it convenient, safe and attractive for teens to walk, ride bicycles and use close-to-home physical activity facilities.[48] Multiple stakeholders in the community, such as public health officials, health promotion managers, transportation officials, parks and recreation staff, city and state planners, economic development officials, medical professionals, environment officials, voluntary organizations, health plans and insurers, elected officials, developers and business leaders all have something to offer.[49]

Tune In

Tune In focuses on the ability to identify and act on appropriate internal cues for eating, respect for self and others and the importance of adults modeling healthy eating and physical activity behaviors.

Parents

Parents can create an atmosphere at home that promotes self-respect for all members. Children and youth can be encouraged to eat in response to appropriate body signals. Parents can serve as role models to children and youth by eating healthy and being physically active. Specifically, parents can:

- Promote a realistic body image for their children;
- Identify community counseling services for overweight children or youth and provide as needed;
- Help young people identify non-hunger triggers for eating such as boredom, emotions, food availability/attractiveness, or advertising; and
- Serve foods such as fruits, vegetables and low fat dairy foods daily.

Schools

Schools can ensure an atmosphere conducive to all students feeling respected and encouraged to make healthy choices, regardless of physical size or weight. Teachers and other school staff can encourage students to tune in to their own body signals so they eat in response to appropriate cues. Schools can provide opportunities for teachers/staff to model healthy eating and increased physical activity. A pleasant school environment and an adequate amount of time for students to enjoy school breakfast and school lunch can be provided. Schools can ensure an environment that fosters healthy attitudes regarding physical activity. Some specific examples include:

- Schools can write, adopt and implement a school "respect" policy that builds appreciation for differences and does not allow criticizing, bullying, name-calling or shaming others about physical size, weight or disability.

- Schools can offer faculty, staff and administrators access to education and training on body weight and size sensitivity in order to eliminate weight discrimination in all classroom and school activities.
- Schools can provide training to staff and parents in how to help children identify internal and external cues for eating.

Communities

Communities can build an atmosphere that is conducive to citizens feeling respected, regardless of size or weight. Citizens can be encouraged to tune in to their own body signals so they eat only when hungry. Increased opportunities for modeling healthy eating and increased physical activity can be provided. Community support for overweight prevention and treatment programs can be encouraged. Specifically, communities can:

- Sponsor community celebrations/fairs/festivals that highlight healthy foods, beverages and physical activity;
- Educate employees of community businesses or agencies in body weight and size sensitivity to eliminate weight discrimination in all community events and activities;
- Use non-food items, nutritious foods, or coupons as rewards and prizes for community activities and events; and
- Provide worksite wellness programs to help adults develop appropriate eating and activity behaviors.[50]

Institute of Medicine (IOM) Reccomendations to Reduce Obesity in Children and Adolescents

No single intervention or group acting alone can stop the epidemic of childhood obesity. According to the Institute of Medicine of the National Academies report, *"Preventing Childhood Obesity: Health in the Balance"*, specific steps recommended by the report include:

- Schools should implement nutritional standards for all foods and beverages served on school grounds, including those from vending machines. There has been a rapid increase in the availability and marketing of foods such as vending-machine sodas and snacks, and other high-calorie, low-nutrient foods and beverages that compete with those offered through federal school-meal programs. A 2000 report from the General Accounting Office found that competitive foods were sold in 98% of secondary schools, 74% of middle schools, and 43% of elementary schools. While the U.S. Department of Agriculture (USDA) requires school meals to follow its Dietary Guidelines for Americans, federal restrictions on competitive foods and beverages are limited to prohibiting the sale of soft drinks and certain types of candy in cafeterias while meals are being served; 21 states, however, have imposed further restrictions.
- Schools should expand opportunities for all students to engage in at least 30 minutes of moderate to vigorous physical activity each day. Schools should provide physical education classes that last 30 to 60 minutes each day. Because

children have a variety of abilities and interests, schools also should expand opportunities beyond traditional physical education classes to create or enhance intramural sports, activity clubs, walking and biking to school, and other venues and programs.
- School health services should measure each student's weight, height, and body mass index (BMI) annually and provide the results to the students and families. Given that many adolescents do not get annual check-ups, this information would help families become aware of any weight concerns and track their children's progress.
- Food, beverage, and entertainment industries should voluntarily develop and implement

guidelines for advertising and marketing directed at children and youth. Congress should give the Federal Trade Commission the authority to monitor compliance with the guidelines and establish external review boards to prohibit advertisements that fail to comply.

- Parents must play their part as well, by providing healthy foods in the home and encouraging physical activity by limiting their children's recreational television, video game, and computer time to less than two hours a day. Although many societal factors affect children' s eating and activity habits, parents can exert a profound influence on their children by promoting healthy foods and an active lifestyle from an early age and by serving as role models, the report says. Parents can encourage their children to develop a healthy, varied diet by introducing new foods in a persistent but noncoercive way. Repeated exposure is most critical during the early years of life, and it can take five to 10 exposures to a new food before a child will accept it. In addition, parents should consider smaller portion sizes, encourage children to stop eating when they feel full, and avoid using food as a reward.
- Health insurance companies should designate childhood obesity prevention as a priority health issue and should include screening and obesity prevention services in routine clinical practice. While insurers primarily have focused on the treatment of obesity, the high cost of this treatment provides insurers with an incentive to prevent the condition.
- Physicians, nurses, and other health care professionals should actively discuss their patients' weight and BMI with parents and with the children themselves in a sensitive and age-appropriate manner. Conversations about weight at the physician's office can be difficult because of concerns about stigmatization and reluctance to recognize a challenging problem. Health professionals' training programs and professional organizations should require that knowledge and skills related to obesity prevention be incorporated into their curricula and examinations so that health professionals have the awareness and skills to tackle these issues.

The full report is available online at http://books.nap.edu/catalog/11015.html.[51]

Tennessee Obesity Prevention Programs

Tennessee Department of Health's Initiative, *Better Health: It's About Time* (BHIAT)

Tennessee Commissioner of Health, Dr. Kenneth S. Robinson, started a new initiative called *Better Health: It's About Time!* (BHIAT). The initiative's purpose is to raise public awareness about the importance of a healthy lifestyle, to encourage individuals to take personal responsibility for their health and well-being, and to give newborn babies a better start in life.

One of the main BHIAT focus areas is childhood obesity. Department of Health staff are working on a number of efforts to address this problem including utilizing intradepartmental strategies to focus existing resources and programs, as well as intra-governmental strategies to collaborate with other departments. Also, the Department of Health is forming partnerships with non-governmental agencies, community-based organizations and the faith community to address the childhood obesity epidemic. To learn more about the Better Health: It's About Time initiative, access the website at http://www.tennessee.gov/health/itsabouttime/index.htm.

Tennessee Department of Health-Nutrition Services

The Tennessee Nutrition Services Program provides supplemental food items to approximately 155,000 eligible participants each month. Participants are pregnant and breastfeeding women, infants and young children under five years of age who are at risk of poor growth, who meet the required income guidelines. Services to certify participants and issue vouchers for the foods are provided at approximately 155 local health departments, primary care, and hospital sites throughout the state. Vouchers are issued in three month increments, and can be redeemed at one of the approximately 1,200 participating grocery stores in Tennessee that have contracts with the Tennessee Department of Health to redeem WIC vouchers. Nutritionists are available to teach individuals or groups proper nutrition for everyday living. Registered dietitians counsel individuals with special dietary needs such as hypertension, diabetes and weight management. Breastfeeding classes and support are also available to all new mothers. To learn more about Nutrition Services, you can access their website at http://www2.state.tn.us/health/wic/about.htm.

Governor's Council on Physical Fitness

The Governor's Council on Physical Fitness and Health was created in order to address the health and fitness needs of all Tennesseans and to promote healthy lifestyles for the state's citizens. The Council is also charged by the Governor to serve as a clearinghouse for information on health and physical fitness programs and make recommendations for such legislation as may be necessary and appropriate to further their goals. For more information, access Tennessee Department of Health's website at http://www2.state.tn.us/health/healthpromotion/index.html#Governor's%20Council%20on%20Physical%20Fitness%20and%20Health

Tennessee Healthy Weight Network

The Tennessee Healthy Weight Network (THWN) is a group of organizations that work together to address the child and adolescent obesity epidemic in Tennessee. The vision of THWN encompasses these elements:

- Communities, schools, child care facilities and families create and expand opportunities for healthy eating and physical activity.
- The health care system is actively engaged in the prevention and treatment of childhood overweight.
- Media images reflect a social and cultural norm of healthy eating and regular physical activity.
- Children and families have the knowledge, skills and support needed to eat well and be physically active for life.
- Overweight/obesity-related health care costs have been reduced and quality of life of the state's citizens enhanced.

To obtain the THWN's state plan to prevent obesity among Tennessee's children and youth, access THWN's website at http://tnhealthyweight.org.

Tennessee Coordinated School Health Program

The Tennessee Department of Education's Coordinated School Health Program (CSHP) is an initiative designed to connect health (physical, emotional and social) with education. Located in 10 counties throughout Tennessee, this coordinated approach improves children's health and their capacity to learn through the support of families, communities and the schools working together. The CSHP model consists of eight interactive components: Health Education, Physical Education/Physical Activity, Health Services, Nutrition Services, Health Promotion for Staff, Counseling and Psychological Services, Healthy School Environment, and Parent/Community Involvement. Coordinated School Health is not a program but a systematic approach to promoting student health that emphasizes needs assessment; planning based on data, sound science, and analysis of gaps and redundancies in school health programming; and evaluation. To learn more about CSHP visit the Tennessee Department of Education's website at http://www.state.tn.us/education/.

Tennessee Action for Healthy Kids

Action for Healthy Kids (AFHK) is a nationwide initiative dedicated to improving the health and educational performance of children through better nutrition and physical activity in schools. Tennessee's Action for Healthy Kids serves as the school committee on the Tennessee Healthy Weight Network (THWN). This group developed the school portion of THWN's ***Eat Smart…Move More…Tune In*** Action Plan. This plan has been disseminated to local community groups, and these groups are encouraged to form local coalitions to implement strategies and objectives aimed at improving the health of our children and youth. To find out more about Tennessee Action for Healthy Kids, access the national website at http://www.actionforhealthykids.org/.

Tennessee Shapes Up

Tennessee Shapes Up is a project of the University of Tennessee Extension. The goal of the project is to prevent unhealthy weight gain by using an evidenced-based nutrition and physical activity program. The major objectives are to teach adults and youth how to balance energy input and expenditure through: increasing participation in daily physical activity, decreasing the amount of sedentary activity, increasing the number of healthy food choices, decreasing the number of unhealthy food choices, and changing attitudes and beliefs that achieving healthy weight requires special diets and intensive physical fitness programs that are unlikely to be maintained long term. To learn more about their Tennessee Shapes Up, access their website at http://fcs.tennessee.edu/fnh/healthy.htm.

Tennessee On the Move

America On The Move is a national initiative dedicated to helping individuals and communities across the U.S. make positive changes to improve health and quality of life. A Tennessee affiliate is based in Knoxville. Tennessee On The Move's (TOM) goal is to support healthy eating and active living habits in our society. TOM:

- Inspires Americans to engage in fun, simple ways to become more active and eat more healthfully to achieve and maintain a healthy weight;
- Creates and supports an integrated grassroots network of state affiliates to build communities that support individual behavior changes; and
- Encourages public and private partnerships at the national, state, and local levels to build the capacity and support needed for individual and community behavior change.

To learn more about Tennessee On The Move, access their website via America On The Move at http://www.americaonthemove.org/affiliates.asp?affiliateid=5.

End Notes

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